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Troxell Law Office PLLC Suite 1404 5205 Leesburg Pike Falls Church, VA 22041			HOLTON, STEVEN E	
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DATE MAILED: 09/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/618,753	LIU, HONG-DA
	Examiner	Art Unit
	Steven E. Holton	2673

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 15 July 2003.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-26 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-26 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 15 July 2003 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "front light module" in claim 20; "static driving circuit" in claim 22, "active driving circuit" in claim 23; "all electrodes are formed on the inner face of the first substrate" of claim 24; and "all electrodes are formed on the inner face of the second substrate" of claim 25 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: the misuse of reference number 81 on page 3, line 1 to reference the electrode plate, the reference should be 80 to agree with other instances of the reference; the use of the term 'backlit module' within the disclosure as the name for the backlight module. The Examiner notes that backlit is a verb so the meaning of the name provides a belief that it is a module that is backlit; however, the meaning that the Examiner believes is intended is that of a backlight module used to provide light through a transmissive type display device. The Examiner recommends changing this name to conform to more standard naming within the art; such a change would also apply to claim 19 as noted in the claim objections below.

Appropriate correction is required.

Claim Objections

3. Claims 2, 3, 11, 12, 14, 16-19, 24 and 25 are objected to because of the following informalities:

Claim 2, the phrase "wherein the two opposite substrate (line 2)" should use 'substrates' in place of substrate to agree with plural and singular case. The phrase "to drive the colored charged particles on the first electrodes defined the reflective areas to control... (lines 7-9)" is difficult to understand. Are the particles on the first electrodes or are they driven to or away from the first electrode? "The first electrodes defined the

reflective areas to control..." is either missing punctuation or requires more words to clarify how the first electrodes and reflective areas are associated.

Claims 3 and 11, the phrase "the two opposite substrate are named a first substrate and a second substrates" should be edited to agree with plural and singular rules of grammar.

Claim 3, the phrase "collets the colored charged particles on the transmissive areas to whether the backlight passes through... (lines 8-9)" needs a verb or other correction between 'to' and 'whether' to provide definition to the phrase.

Claim 11, the phrase "inner faces are faced each other" needs a preposition such as 'towards' to provide necessary information. The phrase "the electrodes formed on the inner face" should provide "the electrodes **are** formed on the inner face" because the limitation that electrodes are formed on the inner face is not found within the claim or preceding claim.

Claim 12, the phrase "between the two of the second electrodes..." should be reconsidered because there is no limitation that there are only two second electrodes.

Claim 14, the phrase "are composed of microcapsules each has a transparent capsule..." would be easier to read and understand with some sort of punctuation between microcapsules and each to show that the remainder of the limitation is used to further define the microcapsules.

Claim 16, the phrase "have positively charge or negatively charge" should either be stated as "have positive or negative charge" or "are positively or negatively charged".

Claim 17, the phrase “each first electrode is covered one whole pixel area of the first electrode and each...” is difficult to understand. Is the phrase intended to mean that each first electrode is covered and that the whole pixel area of the first and second electrodes has at least two second electrode layers? The limitation needs clarifying punctuation or perhaps a rephrasing of ‘each first electrode is covered one whole pixel area of the first electrode” would help to define the meaning of the phrase.

Claim 18, the phrase “each second electrode is covered one whole pixel area of the second substrate” needs either punctuation or rewording to make the phrase more understandable. Perhaps the phrase is meant to state that each second electrode covers one whole pixel area of the second substrate?

Claim 19, as noted above the phrase “backlit module” is objected to because of the definition of the term backlit being a verb. The Examiner recommends changing this term to “backlight module” to reduce confusion.

Claims 24 and 25, the phrase “wherein two opposite substrate are named a first substrate and a second substrates” has basic grammatical errors. The Examiner recommends restating the phrase as “wherein **the** two opposite substrates are named a first substrate and a second substrate” to agree with standard language and grammar.

Appropriate correction is required.

4. Claim 11 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The claim merely names

the substrates and electrodes formed on the substrates are first and second substrates and electrodes. No further limitation to the device as specified in claim 10 is added except for the arbitrary and abstract naming convention of first and second.

Double Patenting

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

5. Claims 10, 14, 15, and 16 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 12, 17, 18, and 19 of copending Application No. 10/618,663. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double

patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1-3, 7, 8, 11, and 17-23 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 10, 11, 13, and 20-26 of copending Application No. 10/618,663. Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are drawn to an electrophoretic display with reflective and transmissive capabilities.

The first claims of both applications read on the same invention, but possess some minor differences between them. The first paragraphs of both claims have two differences. The current application states "display that comprises (line 1)" compared to the differently worded '663 application's "display, wherein the EPD comprises (lines 1 and 2)". Also, the current application specifies 'multiple electrodes (line 2)' and the '663 application only mentioning 'electrodes'. These differences are minor and it is obvious that 'multiple electrodes' and 'electrodes' are plural and the same. Further the method step of both claims is slightly different, but obviously not distinct. The current application states "applying positive and negative voltages...to drive the colored charged particles...(lines 7 and 8)"; whereas, the '663 application states "applying positive and negative electric potentials...to collect the colored charged particles... (lines 7 and 8). Voltages and electric potentials are synonyms for the same aspect of

electricity and driving or collecting charged particles is obviously an action of moving the particles to the same areas and the action is the same in both cases.

Regarding claim 11 of the current application and claim 13 of the '663 application, the claims are identical except for the omission of the word 'are' in the current application's claim on line 4 of claim 11. As noted by the Examiner in the above objection to claim 11, the word 'are' feels expected within the claim language to make the limitation understood and to avoid lack of antecedent problems. The difference between the claims is minor and the claims are obviously drawn to the same invention.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 7, 18, 20, and 22-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claim 7, the usage of microcapsules in a display system involves using the microcapsules with a display liquid inside of the capsule with charged particles

contained within the microcapsules. A standard microcapsule display does not provide the microcapsules within a liquid so that the capsules are moved by electrical charges applied to electrodes, but the capsules are held stationary and applied electrical voltages move the charged particles within the capsules. The disclosure of the current application does not explain how one skilled in the art would modify a standard microcapsule display system so that the microcapsules are contained within a liquid and moved to produce a visual image rather than a standard of stationary microcapsules with contained charged particles within each capsule.

Regarding claim 18, the disclosure shows instances of second electrode layouts in Figs. 2-4, 16C and 16D. None of the discussed systems involve providing the second electrodes such that they entirely cover the whole area of a single pixel. Rather they cover portions of a single pixel. Therefore, the full coverage of a pixel by the second electrode is not enabled by the disclosure of the invention.

Regarding claim 20, the front light module that is mounted on the outer face of the first substrate is not explained in a way for one skilled in the art to make use of the device. Is the light source transparent or opaque? If it were opaque, then a viewer would not be able to see the display. Is the light source separated from the first substrate? If so, is there an optical arrangement to direct light onto the first substrate? How far from the first substrate is the light source? What type of light source would be acceptable to provide front light?

Regarding claim 22, the “static driving circuit” is not named nor enabled within the specification. How would the static driving circuit connect with the device? How would it be operated?

Regarding claim 23, the “active driving circuit” is not named nor enabled within the specification. How would the active driving circuit connect with the device? How would it be operated?

Regarding claims 24-26, the specification fails to point out a device with all of the electrodes being formed on a single substrate. The embodiments of the invention shown and discussed show electrodes on both substrates (Figs. 1, 7-13, and 15). The specification fails to address such matters as: How would the device operate with all electrodes formed on only the inner face of the first or second substrate? The embodiments of the device show electrodes on both substrates and do not discuss an embodiment or method of operation with all electrodes on a single substrate.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 4-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 4 and 5, the phrase “two electrodes” is indefinite and lacks antecedent basis within the claims. What two electrodes are the reflective layers being formed between? Are the reflective layers between the first and second electrodes on

separate substrates? Are they formed between a pair of electrodes on the first substrate? Are they formed between a pair of electrodes on the second substrate? The definition of 'two electrodes' renders claims 4-6 indefinite.

Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: a display liquid that is used to contain the charged particles. Such a liquid is shown in the prior art of the applicant (Fig. 19, element 90).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 1-3, 8-10, 12-15, 17, 19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's acknowledged prior art (Fig. 19), hereinafter AAPA, in view of Choi (USPN: 6621541).

Regarding claim 1, AAPA discloses an electrophoretic display device with two substrates (Fig. 19, elements 91 and 92) with charged particles (Fig. 19, element 93) in a fluid (Fig. 19, element 93). Where, as voltages are applied to the electrodes the charged particles move to produce images. However, AAPA does not expressly disclose a substrate with reflective and transmissive areas that allow either front light to

be reflected or backlight to be transmitted through a passive display device. Choi discloses related art (Fig. 3) that allows a passive display device (liquid crystal display) to be used as both a reflective and transmissive display device. The bottom substrate (Fig. 3, element 18) has electrodes (Fig. 3, elements 2 and 14) that define reflective (Fig. 3, element 2) and transmissive areas (Fig. 3, area A). By providing voltages to either the top electrode of AAPA or different areas of the bottom electrodes discussed by Choi the device could be operated as either a reflective or transmissive display device.

AAPA and Choi are analogous art because both deal with passive and reflective display devices. At the time of invention it would have been obvious to one skilled in the art to utilize the combination backlight and transmissive electrode system discussed by Choi with an electrophoretic display device as discussed by AAPA. The motivation would have been to overcome differences in visibility of the reflective display depending on the ambient light so that viewing was possible in dark and light situations (Choi, col.1 line, 63 – col. 2, line 3). Thus the combination of AAPA and Choi would produce a display that would operate as specified in claim 1.

Regarding claim 2, AAPA operates an electrophoretic display by providing voltages to the front and rear electrodes to direct charged particles to the top or bottom of the display. The Examiner notes that as shown in Fig. 19 the particles could be grouped along the top or bottom electrode based on the applied voltages. Therefore, it would have been obvious to one skilled in the art that the charged particles could be

grouped in a manner so that the reflective areas of Choi could provide lighting to the display could reflect front light on the display.

Regarding claim 3, Choi discloses second electrodes (Fig. 3, elements 2 and 14) where by applying voltages to either 2 or 14 the charged particles of AAPA could be directed onto the reflective areas (Fig. 3, element 2) or the transmissive areas (Fig. 3, element 14). AAPA shows the grouping of charged particles in specific locations in Fig. 19 with groups on both the first and second substrates.

Regarding claims 8 and 9, the Examiner takes Official Notice that these two types of electrophoretic displays are well-known in the art and it would be design choice of one skilled in the art to use either method of electrophoretic display system.

Regarding claim 10, AAPA discloses an electrophoretic display device with two substrates (Fig. 19, elements 91 and 92) with charged particles (Fig. 19, element 93). Where, as voltages are applied to the electrodes the charged particles move to produce images. However, AAPA does not expressly disclose a substrate with reflective and transmissive areas that allow either front light to be reflected or backlight to be transmitted through a passive display device. Choi discloses related art (Fig. 3) that allows a passive display device (liquid crystal display) to be used as both a reflective and transmissive display device. The bottom substrate (Fig. 3, element 18) has electrodes (Fig. 3, elements 2 and 14) that define reflective (Fig. 3, element 2) and transmissive areas (Fig. 3, area A). Further, Choi discloses some electrodes correspond to transmissive areas (Fig. 3, element 14). By providing voltages to either

the top electrode of AAPA or different areas of the bottom electrodes discussed by Choi the device could be operated as either a reflective or transmissive display device.

AAPA and Choi are analogous art because both deal with passive and reflective display devices. At the time of invention it would have been obvious to one skilled in the art to utilize the combination backlight and transmissive electrode system discussed by Choi with an electrophoretic display device as discussed by AAPA. The motivation would have been to overcome differences in visibility of the reflective display depending on the ambient light so that viewing was possible in dark and light situations (Choi, col.1 line, 63 – col. 2, line 3). Thus the combination of AAPA and Choi would produce a display as specified in claim 10.

Regarding claim 12, the Examiner notes that the above objection to claim 11 states that claim 11 fails to further limit claim 10; therefore a rejection of claim 11 would be the same as claim 10. Regarding the limitations of claim 12, Choi discloses reflective layers (Fig. 3, element 2) formed around a transmissive second electrode (Fig. 3, element 14). The Examiner notes that in a standard display where one pixel is represented by Fig. 3 or Choi a second pixel with another transmissive electrode would be formed on either side of the shown figure. Therefore the reflective area would fall between the transmissive areas of the two pixels. Further the reflective areas have a top face so shown as the top of Fig. 3, element 2 where light rays are shown reflecting off of the surface.

Regarding claims 14 and 15, the Examiner takes Official Notice that these types of electrophoretic displays are well known in the art and that it would have been obvious for one skilled in the art to utilize either type as the display device of claims 14 and 15.

Regarding claim 17, the Examiner takes Official Notice that it is well known in the art to provide an electrode that is substantially the size of the entire pixel on the topside of the display. The reason for this is so that when moving the charged particles to the top of the display to reflect all light in the pixel the whole pixel is covered with the particles and a minimal amount of the pixel area is not used to reflect the light shown to the display. This allows the pixel to provide maximum brightness when used in reflective mode.

Regarding claim 19, Choi discloses a backlight module (Fig. 3, element 16). The Examiner notes that it would be a design choice to one skilled in the art to mount the backlight module to the substrate or keep the backlight and substrate separate from each other.

Regarding claim 21, the Examiner takes Official Notice that it is well known in the art of display devices to form substrates out of such transparent materials as glass and plastics so that light can be transmitted or reflected from the display device to a viewer.

10. Claims 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Choi as applied to claims 3 and 13 above, and further in view of Comiskey et al. (USPN: 6177921), hereinafter Comiskey.

Regarding claim 13, as discussed above the combination of AAPA and Choi disclose all of the limitations of claim 3 that are part of claim 8. However, they do not expressly disclose placing a reflective layer between the second electrodes and the second substrate. Comiskey discloses an electrophoretic display with a reflector (Figs. 2A-2D, element 60) located both above and below electrodes on a substrate (Figs. 2A-2D, the reflector is above and below electrode, element 40).

AAPA, Choi and Comiskey are analogous art because all three deal with passive display devices. At the time of invention it would have been obvious to one skilled in the art that instead of making electrodes reflective such as discussed by Choi (Fig. 3, element 2) all electrodes could be made transmissive and a reflective surface placed beneath the electrodes as shown by Comiskey (Figs. 2C and 2D). This would have been a design choice as shown by the various embodiments of Comiskey in Figs. 2A-2D as being substantially similar in function for the device. Therefore, it would have been obvious to combine the teachings of AAPA, Choi and Comiskey to produce with a method of operation as specified in claim 13.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Jang et al. (USPN: 6937303) discloses known prior art for providing a transmissive and reflective type liquid crystal display with electrodes providing transmissive and reflective areas. Drzaic et al. (USPgPub: 2002/0180688)

discloses an electrophoretic display with embodiments of both backlight and reflective style but does not provide one with a combination of backlight and reflective.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven E. Holton whose telephone number is (571) 272-7903. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Steven E. Holton
September 8, 2005
Art Unit 2673



VIJAY SHANKAR
PRIMARY EXAMINER